

PATENT COOPERATION TREATY

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference

see form PCT/ISA/220 004P03674 WO

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/EP2005/003084

International filing date (day/month/year)

07.03.2005

Priority date (day/month/year)

05.03.2004

International Patent Classification (IPC) or both national classification and IPC

G01R33/3873

Applicant

SIEMENS AKTIENGESELLSCHAFT

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized Officer

Dragomir, A

Telephone No. +31 70 340-2175



WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITYInternational application No.
PCT/EP2005/003084

AP20 Rec'd PCT/PTO 05 SEP 2006

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2005/003084

Box No. V Reasoned statement under Rule 43b/s.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-24
Inventive step (IS)	Yes: Claims	
	No: Claims	1-24
Industrial applicability (IA)	Yes: Claims	1-24
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/EP2005/003084

Re Item V.

1 Reference is made to the following documents:

D1 : US 2002/167320 A1 (SATO KENJI) 14 November 2002 (2002-11-14)

D2 : GB 2 319 339 A (* GEC-MARCONI LIMITED) 20 May 1998 (1998-05-20)

D3: US-A-4 639 673 (ZIJLSTRA ET AL) 27 January 1987 (1987-01-27)

2 INDEPENDENT CLAIM 1

2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parenthesis applying to this document):

"A magnetic field adjusting device (page 1, par. 10) for mounting on a pole plate (Fig 5) mounted on a magnetic field generating source, the magnetic field adjusting device comprising a plurality of moveable shimming plugs (page 2, par. 19), characterized in that each of the shimming plugs is mounted in a retaining groove (page 3, par. 38), whereby each shimming plug can only move in the direction of the retaining groove (Fig 5)."

Where the shim plates of D1 are considered to be "the magnetic field adjusting device" of claim 1 and the plates casing 15d in Fig. 5, the pole plate of the present application the adjusting of the shimming properties of the plates casing being realized by inserting or changing various shim plates.

Hence the subject matter of claim 1 is not new (Article 33(2) PCT).

3 INDEPENDENT CLAIM 9

3.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 9 is not new in the sense of Article 33(2) PCT.

Document D2 discloses (the references in parenthesis applying to this document):

"A magnetic field generating source provided with a magnetic field adjusting device (page 3, par. 3), characterized in that the magnetic field adjusting device comprises adjusting bars mounted at the periphery of the magnetic field generating source (page 3, par. 3), the adjusting bars being moveable in a direction substantially parallel to a magnetic field produced by the magnetic field generating source (page 3, par. 3)."

D2 further discloses:

"Bringing in the shims further, and making them complex, i.e. multiple rings, as in Figure 4, brings the good field nearer the edge still. According to the present invention the shims are capable of being retracted and repositioned before and after patient positioning. This can be done by jacking (or threading, and screwing) the shims, and monitoring their positions using a photoelectric microscope at three angular positions, and an array of at least 5 NMR probes. (page 3, par. 3)"

That is to say that the actual shim-rings are repositioned by moving them along the direction of the main magnetic field B0 together with the jack or thread and screw mechanism (or the retaining means) that locks them in place. And since the adjusting bar of claim 9 can also be in the form of a screw (conf. dependent claim 15), it means that the screw used in D2 (bar of claim 9) is "moveable in a direction substantially parallel to a magnetic field produced by the magnetic field generating source".

Hence the subject matter of claim 9 is not new (Article 33(2) PCT).

4 DEPENDENT CLAIMS 2-8, 10-24

Dependent claims 2-8, 10-24 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty (Article 33(2) PCT).

The additional features (e.g. the shape of the groove section, dismountable shims, the existence of a ring shape part, the number or grooves, the use of adjusting electrical motors, the open magnet geometry involved, etc) of these dependent claims are either disclosed (see D1, D2 and the search report) or well known to the person skilled the art of magnets shimming and/or mechanical adjusting means.

The drive-screw mechanism used (in claim 4) for adjusting the homogeneity of a magnetic field in a magnet is know to the skilled person (see for example D3) since "only a slight change in the direction of magnetization of the individual blocks can cause a disturbing inhomogeneity in the main field". Hence, if an accurate positioning of the shims is required, it is known (to the skilled person) to uses drive-screws.

The "press plate" of claim 23, is any connecting plate that separates the yoke from the magnet since the magnet is not in direct contact with the yoke itself.

Hence the subject matter of these claims is not new (Article 33(2) PCT).